



UNIVERSITY OF
TORONTO

Facilities & Services

Resilient flooring standard

Version 01

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09 65 00 – Resilient flooring

1. General

- 1.1 This standard shall be read in conjunction with the Client's (University of Toronto St. George campus) deliverable standard, facility accessibility design standard, carpet design standard, and caretaking design standard.
- 1.2 Refer to Table 1 for required applications by material.
- 1.3 Resilient flooring, including vinyl, laminates and sheet goods, shall be factory finished and require no wax or special applications.
- 1.4 Vinyl composition tile (VCT) should be minimized. Usage location for VCT shall be reviewed by the Client.
- 1.5 Provide post-installation finishing as per manufacturer's recommendation prior to turn over to Client. Cleaning and maintenance specifications shall be provided to the Client upon selection for review.
- 1.6 Refer to Table 2 – Flooring test performance criteria for detailed minimum performance requirements.
- 1.7 All manufacturers shall offer a warranty that the supplied resilient flooring is free of defects for not less than 10 years from installation date.

2. Materials

- 2.1 Resilient flooring includes the following groups of products: rubber, vinyl, luxury vinyl tile (LVT), composition tile, and linoleum products – in both sheets and tile format.
- 2.2 The following materials are covered by this standard:
Surface finishes:
 - i. VCT = vinyl composite tile
 - ii. LVT = luxury vinyl tile
 - iii. VET = vinyl enhanced tile
 - iv. SVT = solid vinyl tile
 - v. HoVT or HoVS = homogenous tile/sheet*
 - vi. RFT or RFS = rubber floor tile/sheet*
 - vii. HtVT/HtVS = heterogenous tile/sheet (vinyl finish @ surface)
 - viii. SpVTS = specialty tile / sheet vinyl (anti-slip, acoustic, food-prep back-of-house, static dissipative).
 - ix. SpRTS = specialty tile / sheet rubber (anti-slip, acoustic, food-prep back-of-house, static dissipative)

x. SPF = sports flooring

Surface finish, unless noted otherwise with asterisk = *Through-finish products

3. References

- 3.1 ASTM F710, Standard Practice for Preparing Concrete Floors to receive resilient flooring
- 3.2 ASTM F1344, Standard Specification for Rubber Floor Tile
- 3.3 ASTM F1861, Specification for Resilient Wall Base, including Cove base.
- 3.4 ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Slabs using in-situ Probes
- 3.5 ASTM F1066, Vinyl Composition Tile + Vinyl Enhanced Tile
- 3.6 ASTM F1700, Solid Vinyl Composition Tile + Luxury Vinyl Composition Tile, Solid Vinyl Tile
- 3.7 ASTM F1913 Homogenous Vinyl Sheet +Tile
- 3.8 ASTM F1303 Heterogenous Vinyl Sheet

4. Submittals

Provide the following samples:

- 4.1 Three samples (250 x 250mm) of each type of material and colour.
- 4.2 Three (250mm) long samples of each base, accessory, and colour.

5. Sustainability and environmental requirements

- 5.1 Refer to Table 3 for sustainability criteria.
- 5.2 A copy of required certifications shall be supplied by the manufacturer.
- 5.3 Low Emitting Materials: adhesives shall have Floor Score Certification Number for indoor air quality to SCS-EC10.3-2014 v4.0
- 5.4 Resilient flooring as well as all installation components including adhesives, sealers, seam welds, and seam sealers shall meet the Low Emitting Materials Standards as outlined in the U.S. Green Building Council LEED criteria.
- 5.5 Adhesives must meet VOC content standards per South Coast Air Quality Management District Rule #1168.

6. Manufacturers

- 6.1 List of manufacturers/suppliers:
 - 6.1.1 Armstrong



- 6.1.2 Interface
- 6.1.3 Johnsonite
- 6.1.4 Shaw
- 6.1.5 Tarkett
- 6.1.6 Mondo
- 6.1.7 Nora
- 6.1.8 Or approved equal



Table 1 – Applications

X = acceptable
- = not acceptable

Location	Powerbond ®	Carpet - Modular Tile	Homogeneous Sheet/Tile	Heterogeneous Vinyl Sheet	Vinyl Composition Tile (VCT)	Luxury Vinyl Tile - Commercial (LVT)	Solid Vinyl Tile (SVT)	Linoleum - Sheet	Rubber Tile
Auditoriums	X	X	X	X	X	X	X	X	X
Cafeteria/ Dining Areas	X	-	X	X	X	X	X	X	X
Classrooms	X	X	X	X	X	X	X	X	X
Computer Labs	X	X	X	X	X	X	X	X	X
Circulation/ Corridors	X	X	X	X	X	X	X	X	X
Food Service Areas/Kitchen	X	-	X	X	X	X	X	X	X
Athletic Movement & Competition Spaces	-	-	-	-	X	-	-	-	X
Makers Space/Lab	-	-	X	X	-	X	X	X	X
Lavatories/Was hrooms/Shower Rm	-	-	X	X	-	-	-	-	-
Media Centre	X	X	X	X	X	X	X	X	X
Locker Rooms/Change Room		-	X	X	-	-	-	-	X

Location	Powerbond ®	Carpet - Modular Tile	Homogeneous Sheet/Tile	Heterogeneo- us Vinyl Sheet	Vinyl Composition Tile (VCT)	Luxury Vinyl Tile - Commercial (LVT)	Solid Vinyl Tile (SVT)	Linoleum - Sheet	Rubber Tile
Multipurpose Rooms - Cafetorium/ General Seating	X	X	X	X	X	X	X	X	X
Office, Conference Rooms	X	X	X	X	X	X	X	X	X
Ramps - Ramped Corridors (dry)	-	-	X	X	-	X	-	X	X
Stairways - Landings	X	-	X	X	X	X	X	X	X
Utility - Storage Rooms	-	-	X	X	-	X	X	X	X
Vestibule - Entryways - Foyers	X	X	X	X	X	X	X	X	X
Weight Room	-	-	-	-	-	-	-	-	X
Collaboration Space	X	X	X	X	X	X	X	X	X
Lecture Stairs	X	X	X	X	X	X	X	X	X

Table 2 - Test performance criteria

Performance criteria	Reference	Homogeneous Sheet/Tile	Heterogeneous Sheet	Vinyl Composition Tile (VCT)	Luxury Vinyl Tile (LVT)	Solid Vinyl Tile (SVT)	Static Dissipative Vinyl Sheet/Tile	Linoleum	Rubber Tile	Sports Flooring Rubber Tile
Wear layer	ASTM F410	0.080 inches (2 mm)	0.025 inches (0.6 mm)	0.125 inches (3.17 mm)	0.020 inches (0.5 mm)	0.125 inches (3.2 mm)	0.080 inches (2.0 mm)	0.098 inches (2.5 mm)	0.125 inches (3.17 mm)	0.080 inches (2.0 mm)
Total thickness	ASTM F386	0.080 inches (2 mm)	0.080 inches (2 mm)	0.125 inches (3.17 mm)	0.120 inches (3.05 mm)	0.125 inches (3.2 mm)	0.080 inches (2.0 mm)	0.098 inches (2.5 mm)	0.125 inches (3.17 mm)	0.375 inches (9.5 mm)
Flexibility	ASTM F137	Passes	Passes	N/A	Passes	Passes	Passes	Passes	N/A	N/A
Chemical Resistance	ASTM F925	Passes	Passes	Passes	Passes	Passes	Passes	Passes	Passes	Passes
Static Load Limit	ASTM F970	Passes 250 psi	Passes 175 PSI	150 PSI, < 0.0 05 inches	250 PSI, < 0.0 05 inches	Passes 250 PSI / Modified 800 PSI	Passes 250 PSI, < 0.0 05"	Passes 150 PSI	250 PSI	250 PSI
Resistance to Heat	ASTM F1514	$\Delta E \leq 8$	$\Delta E \leq 8$	$\Delta E \leq 8$	$\Delta E \leq 8$	$\Delta E \leq 8$	N/A	$\Delta E \leq 8$	$\Delta E \leq 8$	$\Delta E \leq 8$
Resistance to Light	ASTM F1515	$\Delta E \leq 8$	$\Delta E \leq 8$	N/A	$\Delta E \leq 8$	$\Delta E \leq 8$	$\Delta E \leq 8$	$\Delta E \leq 8$	$\Delta E \leq 8$	$\Delta E \leq 8$
Residual Indentation	ASTM F1914	Passes	Passes	Passes	Passes	Passes	Passes	N/A	N/A	N/A
Static Coefficient of Friction	ASTM D 2047	≥ 0.5 SCOF	≥ 0.5 SCOF	N/A	≥ 0.5 SCOF	≥ 0.5 SCOF	≥ 0.5 SCOF	≥ 0.5 SCOF	> 0.8 SCOF	> 0.8 SCOF
Flammability	ASTM	Class 1 ($\geq$)	Class 1 ($\geq$)	Class 1 ($\geq$)	Class 1 ($\geq$)	Class 1 ($\geq$)	Class 1 ($\geq$)	Class 1 ($\geq$)	Class 1 ($\geq$)	Class 1 ($\geq$)

Performance criteria	Reference	Homogeneous Sheet/Tile	Heterogeneous Sheet	Vinyl Composition Tile (VCT)	Luxury Vinyl Tile (LVT)	Solid Vinyl Tile (SVT)	Static Dissipative Vinyl Sheet/Tile	Linoleum	Rubber Tile	Sports Flooring Rubber Tile
	E648, Critical Radiant Flux	0.45 W/cm2)	0.45 W/cm2)	0.45 W/cm2)	0.45 W/cm2)	0.45 W/cm2)	0.45 W/cm2)	0.45 W/cm2)	0.45 W/cm2)	0.45 W/cm2)
Size/squareness	ASTM F2055	Passes	N/A	Passes	Passes	Passes	Passes	N/A	Passes	Passes
Deflection	ASTM F1304	N/A	N/A	Passes	N/A	N/A	N/A	N/A	N/A	N/A
Dimensional Stability	ASTM F2199	Passes	N/A	Passes	Passes	Passes	Passes	N/A	Passes	Passes
ESD-approval SP-method 2472	N/A	N/A	N/A	N/A	N/A	N/A	$\leq 10^9$ Ohms	N/A	N/A	N/A
EN 1081	N/A	N/A	N/A	N/A	N/A	N/A	$\leq 10^8$ Ohms	N/A	N/A	N/A
EN/IEC 61340-4-1, 100 V	N/A	N/A	N/A	N/A	N/A	N/A	$\leq 10^8$ Ohms	N/A	N/A	N/A
Hardness	ASTM D2240	N/A	N/A	N/A	N/A	N/A	N/A	N/A	> 85 Shore A	> 70 Shore A

Table 3 - Sustainability criteria

SUSTAINABILITY CRITERIA	Homogeneous Sheet/Tile	Heterogeneous Sheet	Vinyl Composition Tile (VCT)	Luxury Vinyl Tile (LVT)	Solid Vinyl Tile (SVT)	Static Dissipative Vinyl Sheet/Tile	Linoleum	Rubber Tile	Sports Flooring Rubber Tile
Environmental Product Declaration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Floor Score Certification	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Asthma and Allergy Certification	N/A	Yes	N/A	Yes	N/A	Yes	N/A	N/A	N/A
Carbon Neutrality	Yes	Yes	N/A	Yes	N/A	Yes	Yes	Yes	Yes
Phthalate Free	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TVOC 0.5 mg/m3 or less	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
98% of materials analyzed and optimized Cradle to Cradle®	Yes	Yes	N/A	Yes	Yes	Yes	Yes (100% analyzed - cradle to cradle silver)	Yes (100% analyzed - cradle to cradle bronze)	Yes (100% analyzed - cradle to cradle bronze)
Material Health Statements	Yes	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes
Green Circle Certified	Yes	N/A	N/A	N/A	N/A	Yes	N/A	No	N/A
Recycled Content - Post Consumer	0%	0%	0%	0	0%	0%	0%	0%	0%

SUSTAINABILITY CRITERIA	Homogeneous Sheet/Tile	Heterogeneous Sheet	Vinyl Composition Tile (VCT)	Luxury Vinyl Tile (LVT)	Solid Vinyl Tile (SVT)	Static Dissipative Vinyl Sheet/Tile	Linoleum	Rubber Tile	Sports Flooring Rubber Tile
Recycled Content - Pre-Consumer	1-25%	32%	30%	45%	0%	1%	34%	0%	33%

